REMARKS/ARGUMENTS

The drawings have been corrected at Fig. 7 to stipple arrow 162, to conform with the specification and with the drawings as initially filed.

Claims1, 6 have been canceled.

Claims 2-5, 7-16 have been rejected under 35 U.S.C. §102(b) over Nagai et al. U.S. Patent 5,863,311, Gillingham et al. U.S. Patent 5,820,646, Nakamura et al. U.S. Patent 5,322,537, and Frost et al. U.S. Patent 4,419,108. Reconsideration in view of the following remarks is respectfully requested.

Claim 2 requires an exhaust aftertreatment filter (e.g. 100, Figs. 5-8) for internal combustion engine exhaust comprising an axially extending cylindrical filter roll (106) comprising pleated filter media (110) defining a plurality of axially extending flow channels (130), and having a first open-flow section (142) with open flow channels (140), and a second filtering section (148) with alternately sealed flow channels (136, 138) forcing exhaust to flow (158) through the pleated filter media. Claim 2 requires that the open-flow section (140) is a central inner section, and that the filtering section (148) is an outer annular section around the inner section. This is not taught in any of Nagai et al. '311, Gillingham et al. '646, Nakamura et al. '537 nor Frost et al. '108, all of which show serial flow through axially aligned sections. None of the references shows an open-flow section as a central inner section, and a filtering section as an outer annular section around the inner section. Consideration and allowance of claim 2 is respectfully requested.

Claim 3 requires first and second axially spaced sealing beads (112, 114, Fig. 6) extending laterally across the pleats (110) and alternately sealing the flow channels (130), the sheet (108) being wound from a starting side (118) to a terminating side (120), the beads (112, 114) being laterally spaced from one of the starting and terminating sides (118, 120) to provide unsealed flow channels (140, Fig. 7) providing the open-flow section (142) of the filter roll (106) when wound. There is no such structure nor teaching in any of the noted references. Gillingham et al. '646 shows in Fig. 16 sealing beads 238 axially spaced from the ends of the channels, but there is no showing nor teaching in the references of the

defined lateral spacing of the beads from one of the starting and terminating sides to provide unsealed flow channels providing the open-flow section of the filter roll when wound. Consideration and allowance of claim 3 is respectfully requested.

Claim 4 depends from claim 3 and further requires that the sealing beads (112, 114) be laterally spaced from the starting side (118).

Claim 5 depends from claim 3 and further requires that the beads (112, 114) be laterally spaced from the terminating side (120, specification page 6, lines 29-31).

Claim 7 defines an exhaust aftertreatment filter (100, Fig. 5) for filtering internal combustion engine exhaust flowing along an axial direction (102), comprising an axially extending cylindrical filter roll (106) having a plurality of concentric layers with pleats therebetween defined by wall segments (122, Figs. 5-8) extending radially in corrugated serpentine manner between pleats tips at axially extending bend lines (124), the wall segments (122) extending axially between first and second distally opposite axial ends (126, 128), the wall segments (122) defining axial flow channels (130) therebetween, the filter roll (106) having a central inner section (142), and an outer annular section (148) around the inner section (142), the wall segments (122) of the outer section (148) being alternately sealed to each other by a first set of plugs (132) to define a first set of flow channels (136) closed by the plugs (132), and a second set of flow channels (138) interdigitated with the first set of flow channels (136) and having open first axial ends, the wall segments (122) of the outer section (148) being alternately sealed to each other by a second set of plugs (134) axially spaced from the first set of plugs (132) and closing the second set of flow channels (138), the first set of flow channels (136) having open second axial ends. Claim 7 requires that the wall segments (122) of the inner section (142) define a third set of flow channels (140) open at both the first and second axial ends (Fig. 7). In contrast, none of the references show an inner section defining a third set of flow channels open at both axial ends.

Claim 8 depends from claim 7 and further requires that the first axial ends of the wall segments (122) of the inner section (142) are axially recessed (146, Fig. 7) from the first axial ends of the wall segments (122) of the outer section (148). This requirement of

the axial recess (146) of the axial ends of the inner section from the axial ends of the outer section is not taught in the references.

Claim 9 depends from claim 8 and further requires that the filter roll (106) have an inner central face (152, Fig. 7) at the first axial ends of the wall segments (122) of the inner section (142) and an outer annular face (154) at the first axial ends of the wall segments (122) of the outer section (148), and that the inner face (152) be spaced axially from the outer face (154). This axial spacing of faces 152 and 154 is nowhere shown or suggested in the references.

Claim 10 depends from claim 7 and further requires in combination an axially extending housing (170, Fig. 9) enclosing the filter roll (106) and having axially distally opposite first and second plenums (172, 174), an inlet port (176) in the first plenum (172), an outlet port (178) in the second plenum (174), such that engine exhaust flows (102) into the first plenum (172) from the first inlet port (176), then flows in parallel (160, 156) through the inner and outer sections (142, 148) to the second plenum (174) for exit (162, 158) at the outlet port (178), the engine exhaust flowing (160) from the inlet plenum (172) through the third set of flow channels (140) from the open first axial ends thereof to the open second axial ends thereof then (162) into the second plenum (174), the engine exhaust also flowing (156) from the inlet plenum (172) into the open first axial ends of the second set of flow channels (138) and then being filtered by passage through the wall segments (122) of the outer section (148) and then flowing out (158) of the open second axial ends of the first set of flow channels (136) into the second plenum (174). This constructional combination is nowhere taught or suggested in the references.

Claim 11 depends from claim 7 and further requires in combination (Fig. 10) an axially extending housing (170) enclosing the filter roll (106) and having axially distally opposite first and second plenums (172, 174), an outlet port (180) in the first plenum (172), an inlet tube (150) supplying engine exhaust (102) to the first axial end of the inner section (142) to supply exhaust to the first axial ends of the third set of flow channels (140), such that engine exhaust flows through the third set of flow channels (140) from the open first axial ends thereof to the open second axial ends thereof, then into the second plenum (174)

wherein exhaust flow reverses (182) and flows into the open second axial ends of the first set of flow channels (136) and then is filtered by passing through the wall segments (122) of the outer section (148) and flows out of the open first axial ends of the second set of flow channels (138) into the first plenum (172) and then to the outlet port (180). None of the references show the required flow reversal (182) in the defined second plenum (174) from the open second axial ends of the first set of flow channels (140) to the open second axial ends of the first set of flow channels (136), and flow out of the open first axial ends (at 184) of the second set of flow channels (138) into the first plenum (172) and then to the outlet port (180).

Claim 12 depends from claim 11 and further requires that the first plenum (172) have an inlet port (186), and that the inlet tube (150) extends from the inlet port (186) through the first plenum (172) to the first axial end of the inner section (142).

Claim 13 depends from claim 7 and further requires in combination an axially extending housing (170) enclosing the filter roll (106) and having axially distally opposite first and second plenums (172, 174), an inlet port (180, specification page 8, lines 4+) in the first plenum (172), an outlet tube (150) extending from the first axial end of the inner section (142), such that engine exhaust flows into the first plenum (172) from the inlet port (180) then into the open first axial ends of the second set of flow channels (138) and then is filtered through the wall segments (122) of the outer section (148) and then flows out of the open second axial ends of the first set of flow channels (136) into the second plenum (174) wherein exhaust flow reverses and flows through the third set of flow channels (140) from the open second axial ends thereof to the open first axial ends thereof, then through the outlet tube (150). This combination is not taught or suggested in the references.

Claim 14 depends from claim 13 and further requires that the first plenum (172) have an outlet port (186), and that the outlet tube (150) extends from the first axial end of the inner section (142) through the first plenum (172) to the outlet port (186).

Claim 15 depends from claim 7 and further requires that the filter roll (106) is spiral-wound from a sheet (108) having the corrugated serpentine pleats (110) thereon, the first and second sets of plugs (132, 134) being provided by the first and second axially

spaced sealing beads (112, 114) extending laterally across the pleats (110), the sheet (108) being wound from a starting side (118) to a terminating side (120), the beads (112, 114) being laterally spaced from the starting side (118) to provide the third set of flow channels (140) as open unsealed flow channels through the inner section (142) of the filter roll (106) when wound. This combination is not suggested in the references.

Claim 16 depends from claim 15 and further requires that the sheet have a cut-out section (144, Fig. 6) along the starting side (118) and along the first axial end (126), such that after winding, the first axial ends of the wall segments (122) of the inner section (142) are axially recessed (146, Fig. 7) from the first axial ends of the wall segments (122) of the outer section (148).

It is believed that this application is in condition for allowance with claims 2-5, 7-16, and such action is earnestly solicited.

Respectfully submitted,

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